ICT for Development

Session 1 & 2

Dr. Rajesh Sharma ITS
Department of Telecom
New Delhi

Recap of Session 1,2

- *Course objectives*
- *Course outline*
- *Project work*
- *What is Development?*
- *Economic theories and People-Centric theory of development*
- *Criticism of economic theories*
- *Developing vs. Developed countries*
- *Human Development Index*

Group Project Outline

- *Why was this project developed*
- *What are the objectives of the project?*
- *What is the project context? (policy environment, economic and social conditions, etc.)*
- *What are the strengths (e.g. resources and capacities available) and weaknesses (e.g. vulnerable conditions) of the project?*
- *What are the external opportunities and threats that affect the project?*
- *What is the expected results of the project?*
- *What are the achievements and impacts?*
- *What are the methodologies and tools used in the project?*
- *How was ICT applied in the project?*
- *How was the project managed? By whom?*
- *What were the good practices, lessons learned and recommendations for future actions?*
- *Source and References: Useful references for further information*

What is Development?

- *The term means different things to different people, based on economic, geographic, political, social, cultural, religious and ethnic contexts.*
- *Current development perspectives originated from*
  - *post World War II era when the term "development" was used as part of a rationale for post-war reconstruction in Europe and the "underdeveloped parts" of the world.*
  - *immediate post-colonial experience where most of the newly independent countries of Asia and Africa were, according to Western values, left far behind in terms of progress.*
- *"Development" as a conceptual framework for a number of individual, institutional, national and international changes is essentially a post World War II phenomenon.*
- *Became synonymous with growth, modernization, change, democracy, and many similar Western values, and in the beginning was* **focused largely on economic development.**
- *Measured by economic indicators e.g. Gross National Product (GNP), GNP per capita, Gross Domestic Product (GDP) and GDP per capita and per capita income*

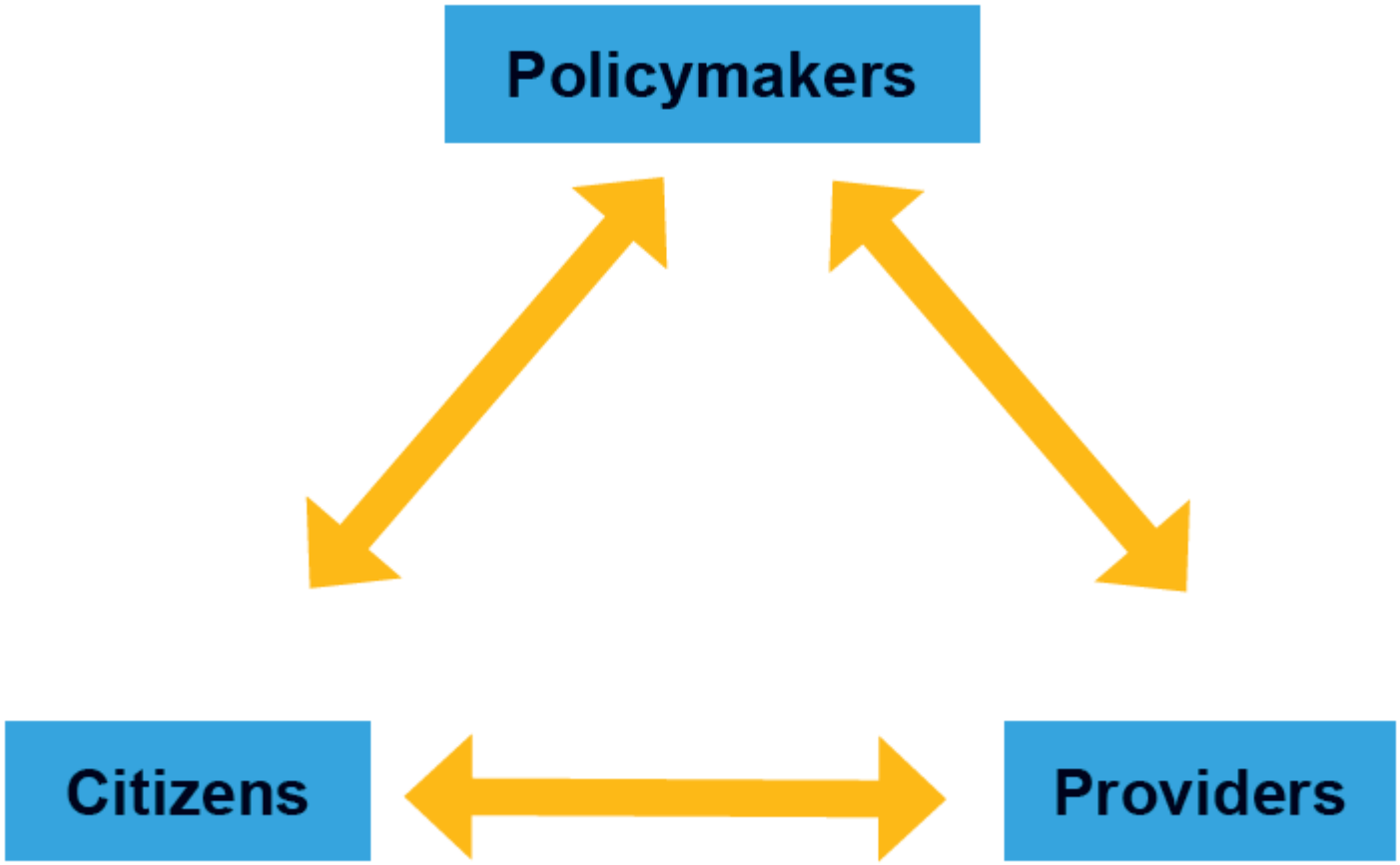
Human Development Index

- *The HDI consists of three indices: life expectancy, education/literacy and standard of living to compare the level of development of a particular group of people (as in, developed, developing, underdeveloped) based on the availability of options.*
- *The logic is that the more developed a group of people are, the more options are available to them.*
- *Comparing HDI over a period of 20-30 years show that there have been improvements in all dimensions of human development in life expectancy, literacy and income levels.*
- *However, the gap between developed countries and developing countries remains high.*
- *Most developed countries have HDIs of 0.8 or higher*
- *Despite having the world's second-largest economy, China is still not classified as a developed country*
  - *lowest GDPs per capita*
  - *dependence on agriculture, (7.7% of China's overall GDP)*
  - *average life expectancy was 77 years, and its infant mortality rate was 11 per 1,000 live births.*

Role of ICT in Development

- *ICTs have provided citizens with* **new opportunities and resources**
  - *e-Government extends the reach of public services*
  - *social media provides voices to those social groups most often marginalized*
  - *e-Health brings medical practitioners to rural communities*
  - *online learning provides access to education for those outside traditional hubs of learning*
- *Play an important role in fostering improved connectivity as well as socio-economic development throughout the world.*
- **Challenges: Digital Divide**
  - *Considerable inequalities in terms of ICT infrastructure, connectivity and know-how still exist & inhibit the potential benefits of ICTs from being adequately leveraged.*
  - *Access to ICTs is not uniform across regions, countries and communities, with many significant discrepancies existing between neighboring regions and the social groups within them.*

Stakeholders in ICT for Development



Role of ICT in Development

Sector	Applications
Agriculture and Livelihoods	• Telecentres • Information on pricing and weather for farmers • Sustainable livelihoods • Income generation
Education	• Distance education • Teacher training • ICT human capacity building
Health	• Telemedicine • Digital publication and online resources • Continuing medical education
Business and Economy	• e-Banking • International trade • Globalization
Media, Culture and Tourism	• Digital newsrooms • Culture and culture products • Archival technology • New media formats

Role of ICT in Development

Sector	Applications
Environment	• GIS mapping • Networking of activists • Environmental protection • Climate change
Governance	• Online citizen services • Social accountability • NGO development
Urban Development	• Urban planning • Service delivery • Urban telecentres
Rural Development	• Rural community networks • Rural tourism • Health care

Millennium Development Goals

- *Millennium Development Goals* **(MDGs)** *were the eight international development goals for the year 2015 that had been established following the Millennium Summit of the* **United Nations** *in 2000.*
- *All 189 United Nations member states at the time and 23 international organizations, committed to help achieve Millennium Development Goals by 2015:*
  - *To eradicate extreme poverty and hunger*
  - *To achieve universal primary education*
  - *To promote gender equality and empower women*
  - *To reduce child mortality*
  - *To improve maternal health*
  - *To combat HIV/AIDS, malaria, and other diseases*
  - *To ensure environmental sustainability*
  - *To develop a global partnership for development*

Sustainable Development Goals

- *At the United Nations Sustainable Development Summit on 25/09/15, world leaders adopted the 2030 Agenda for Sustainable Development, which includes a set of 17 Sustainable Development Goals (SDGs) to end poverty, fight inequality and injustice, and tackle climate change by 2030.*

Succeeding the MDGs, the SDGs are the new universal goals, adopted by 193 countries including India.

SDGs comprise 17 Goals and 169 targets:

Implementation Span: 2016-2030.

Several SDG targets are to be achieved before 2030;

Some of them even by 2020.

SDGs integrate economic, social and environmental dimensions;

Goals & targets interconnected as never before.


SUSTAINABLE DEVELOPMENT GOALS
1 NO POVERTY
2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE, JUSTICE AND STRONG INSTITUTIONS
17 PARTNERSHIPS FOR THE GOALS
SUSTAINABLE DEVELOPMENT GOALS

SDG Categorization

Social ▪ *SDG 1 - No Poverty* ▪ *SDG 2 - Zero Hunger* ▪ *SDG 3 - Good Health and Well-Being* ▪ *SDG 4 - Quality Education* ▪ *SDG 5 - Gender Equality* ▪ *SDG 6 - Clean Water and Sanitation*	**Environmental** ▪ *SDG 12-Sustainable Consumption and Production* ▪ *SDG 13- Climate Action* ▪ *SDG 14- Life Below Water* ▪ *SDG 15- Life on Land*
Economic ▪ *SDG 7- Affordable and Clean Energy* ▪ *SDG 8- Decent Work and Economic Growth* ▪ *SDG 9- Industry, Innovation and Infrastructure* ▪ *SDG 10 – Reduced Inequalities* ▪ *SDG 11- Sustainable Cities and Communities*	**Fostering Peace and Partnership** ▪ *SDG16- Peace, Justice and Strong Institutions* ▪ *SDG 17- Partnerships for the Goals*

Sustainable Development Goals

Goal 1	**End poverty** *in all its forms everywhere*	**Goal 10**	*Reduce inequality within and among countries*
Goal 2	**End hunger**, *achieve food security and improved nutrition and promote sustainable agriculture*	**Goal 11**	*Make cities and human settlements inclusive, safe, resilient and sustainable*
Goal 3	*Ensure* **healthy lives** *and promote well-being for all at all ages*	**Goal 12**	*Ensure sustainable consumption and production patterns*
Goal 4	*Ensure inclusive and equitable* **quality education** *and promote lifelong learning opportunities for all*	**Goal 13**	*Take urgent action to combat climate change and its impacts*
Goal 5	*Achieve* **gender equality** *and empower all women and girls*	**Goal 14**	*Conserve and sustainably use the oceans, seas and marine resources for sustainable development*
Goal 6	*Ensure availability and sustainable management of* **water and sanitation** *for all (6.a, 6.b)*	**Goal 15**	*Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss*
Goal 7	*Ensure access to affordable, reliable, sustainable and modern energy for all*	**Goal 16**	*Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels*
Goal 8	*Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all*	**Goal 17**	*Strengthen the means of implementation and revitalize the global partnership for sustainable development*
Goal 9	*Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation*		

MDG & SDG Comparison

MDGs to SDGs: Strategic Shifts

MDG	SDG
Traditional assistance	*Traditional assistance + Universal goals*
Limited goals	*More comprehensive*
Top-down process	*Inclusive goal setting*
Traditional statistics	*Traditional + Data revolution*
Hunger and poverty together	*Distinction*
Quantity Education	*Quality Education*
Funding: Focus on ODA	*Broader set of financial sources*

MDGs to SDGs: Strategic Shifts

- **Conclusiveness –** *Focus on the Finish line: Zero Poverty, Hunger, preventable Child Deaths, Gender Discrimination & Violence, etc.*
- **Comprehensiveness -** *The SDGs are more comprehensive with fuller array of targets, better focus on causality and strategic issues.*
- **Universality** – *Applicable to all countries, with greater emphasis on the responsibility of the developed countries,*
- **Inclusiveness –** *Clear focus on 'leaving no one behind and reaching the furthest behind first.*
- **Hunger distinct from Poverty –** *deeper analysis of structural and social factors separates poverty from food and nutrition security.*
- **Peace Building –** *Addressing conflict resolution and peace building as enablers of growth and development*
- **Resourcing –**
  - *Focus on sustainable economic development in a country to meet financial resource requirement for achieving SDGs;*
  - *Holistic approach to international financing of SDGs – Stronger focus on ODA, international resource flows, technology transfer and trade*
- **Measurability –** *Clear emphasis on monitoring, evaluation and accountability, and the metrics - high-quality, up-to-date and reliable data*

Indicators of SDGs

S. No.	SDGs	No. of Indicators	Focus Areas of Indicators
1	*No Poverty*	*5*	•*population below poverty line & poverty gap ratio,* •*employment under MGNREGA,* •*Access to safe drinking water & Sanitation*
2	*Zero Hunger*	*5*	•*Access to food grains at subsidized prices* •*Stunting & wasting in under-5 children* •*Agricultural productivity & Gross Value Added per worker*
3	*Good Health and Well-Being*	*9*	•*Maternal Mortality Ratio; Neo-natal & Under-5 Mortality Rates* •*Immunisation of under-2 children* •*Incidence of HIV/AIDS, malaria & TB* •*Medical personnel per 10,000 people*
4	*Quality Education*	*4*	•*Net Enrolment Ratio & Out of School Ratio* •*Enrolment Ratio of Children with disabilities* •*Pupil Teacher Ratio*

Indicators of SDGs

	SDGs	No. of Indicators	Focus Areas of Indicators
5	Gender Equality	3	• Crime against women • Women's representation in Parliament, State Assembly & local bodies • Use of family planning methods
6	Clean Water and Sanitation	2	• Access to potable water & sanitary toilet (Urban/Rural)
7	Affordable and Clean Energy	3	• Access to electricity & clean cooking fuel • Share of renewable energy in total energy
8	Decent Work and Economic Growth	7	• Annual Growth Rate of GDP (PPP Per Capita) • Annual Growth Rate of Manufacturing, Agriculture & MSME sector • Unemployment & Work Force Participation Rate (M/F) • Access to bank accounts & banking outlets

Indicators of SDGs

	SDGs	No. of Indicators	Focus Areas of Indicators
9	Industry, Innovation and Infrastructure	6	• % of rural population living within 2 km of an all-season road • Share of manufacturing sector employment in total employment • CO_2 emission per unit of value added • R&D expenditure as % of GDP & No. of patents/IPRs filed • Access to mobile phones.
10	Reduced Inequalities	2	• Income growth among the bottom 40% of People • Representation of vulnerable groups in elected bodies
11	Sustainable Cities and Communities	3	• Slums/EWS settlements covered by formal housing • Proportion of cities with efficient public transport & mobility • Annual Mean levels of PM 2.5 & PM 10 in cities
12	Sustainable Consumption and Production	2	• Post harvest storage & distribution losses • Adoption of Waste Management measures

Indicators of SDGs

	SDGs	No. of Indicators	Focus Areas of Indicators
13	Climate Action	2	• Number of states taking climate adaptive measures • Achievement of Nationally Determined Contribution (NDC) Goals
14	Life Below Water	2	• No of sewage treatment plants and toilets constructed • % Change in area under mangroves
15	Life on Land	4	• Proportion of forest area to total land area • Total tree cover outside forest area • Increase in Tree/ Forest cover in degraded areas • % Increase in Net Sown Area
16	Peace, Justice and Strong Institutions	4	• % of people subjected to violence • No. of human trafficking victims per 1,00,000 people • No. of government online services provided • Population covered under Aadhaar

Role of ICT in SDGs

ICTs are catalytic drivers to enable the achievement of all the SDGs

" The spread of information and communication technology and global interconnectedness has great potential to accelerate human progress, to bridge the digital divide and to develop knowledge societies, as does scientific and technological innovation across areas as diverse as medicine and energy".

2030 Agenda for Sustainable Development (Paragraph 15)

References to ICT in SDGs

- *While none of the SDGs is specifically about ICTs, several targets make references to ICTs and technology.*

- *ITU has made a concerted effort to highlight the role* **that ICTs will play in achieving the SDGs**. *It is actively participating in the discussions on the indicators that will be used to track the SDGs.*

- *Link to UN Global Indicators for SDGs*

https://unstats.un.org/sdgs/indicators/indicators-list/

Click here for Excel file with all SDG targets

Role of ICT in SDGs

- *The February 2016 version of the IAEG-SDGs(Inter-agency and Expert Group on SDGs) report includes the following* **7 ICT indicators covering 6 targets** *under Goals 4, 5, 9, and 17. (The organization indicated in brackets tracks the indicator at the international level).*

Proposed SDG indicators related to ICTs

- **Target 4a:** *Proportion of schools with access to computers & Internet for pedagogical purposes (UIS)*
- **Target 4.4:** *Proportion of youth/adults with ICT skills, by type of skills (ITU)*
- **Target 5b:** *Proportion of individuals who own a mobile telephone, by sex (ITU)*
- **Target 9c:** *Percentage of the population covered by a mobile network, broken down by technology (ITU)*
- **Target 17.6:** *Fixed Internet broadband subscriptions, broken down by speed (ITU)*
- **Target 17.8:** *Proportion of individuals using the Internet (ITU)*

NITI Aayog's Strategy for SDGs in India

Mapping of National Programs with SDGs

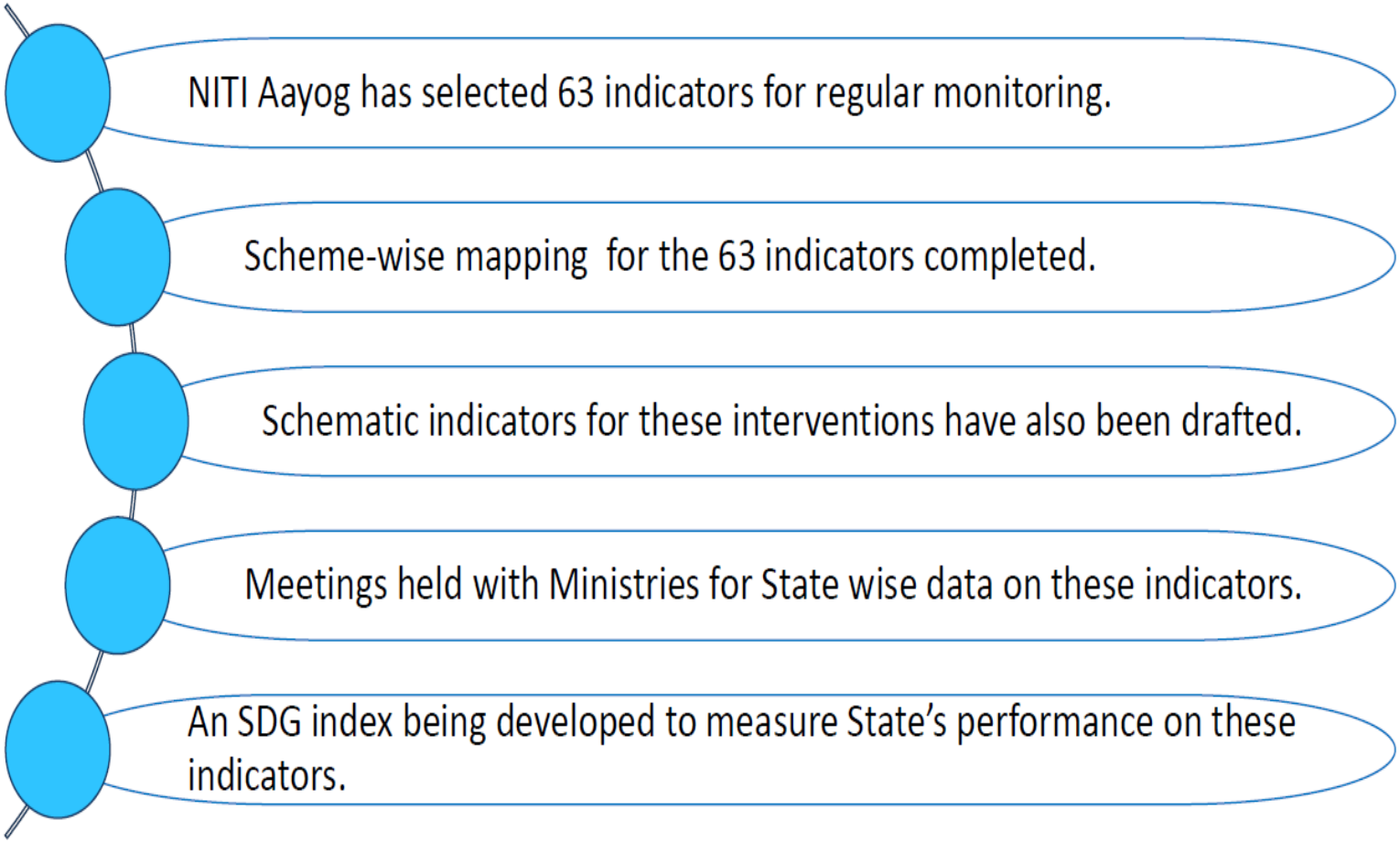
- Mahatma Gandhi National Rural Employment Guarantee Programme
- National Rural & Urban Livelihood Mission
- Pradhan Mantri Jan Dhan Yojana
- Soil Health Cards
- National Food Security Mission
- National Health Mission
- National Education Mission
- Beti Bachao Beti Padhao
- Swachh Bharat Mission
- National Rural Drinking Water Programme
- Pradhan Mantri Aawas Yojana - Rural and Urban
- Pradhan Mantri Gram Sadak Yojana
- Pradhan Mantri Krishi Sinchai Yojana
- Pradhan Mantri Ujjwala Yojana
- National Mission for a Green India

State Schemes/ Programmes

Integration of Programs with SDGs

- NITI Aayog has mapped out SDGs & related targets, and Outcome Indicators on Central Ministries, Centrally Sponsored/Central Sector Schemes & other government initiatives.
- Several States have conducted similar mapping of their departments and schemes/programmes.
- Nodal Ministries at Central level and Nodal departments in some States have been identified.
- Several States have set up SDG Cells or Centres of Excellence for coordinating SDG implementation.
- NITI Aayog has constituted a Task Force with participation by Central Ministries & States for regular review of SDG implementation in the country.

Monitoring Implementation: Priority Indicators



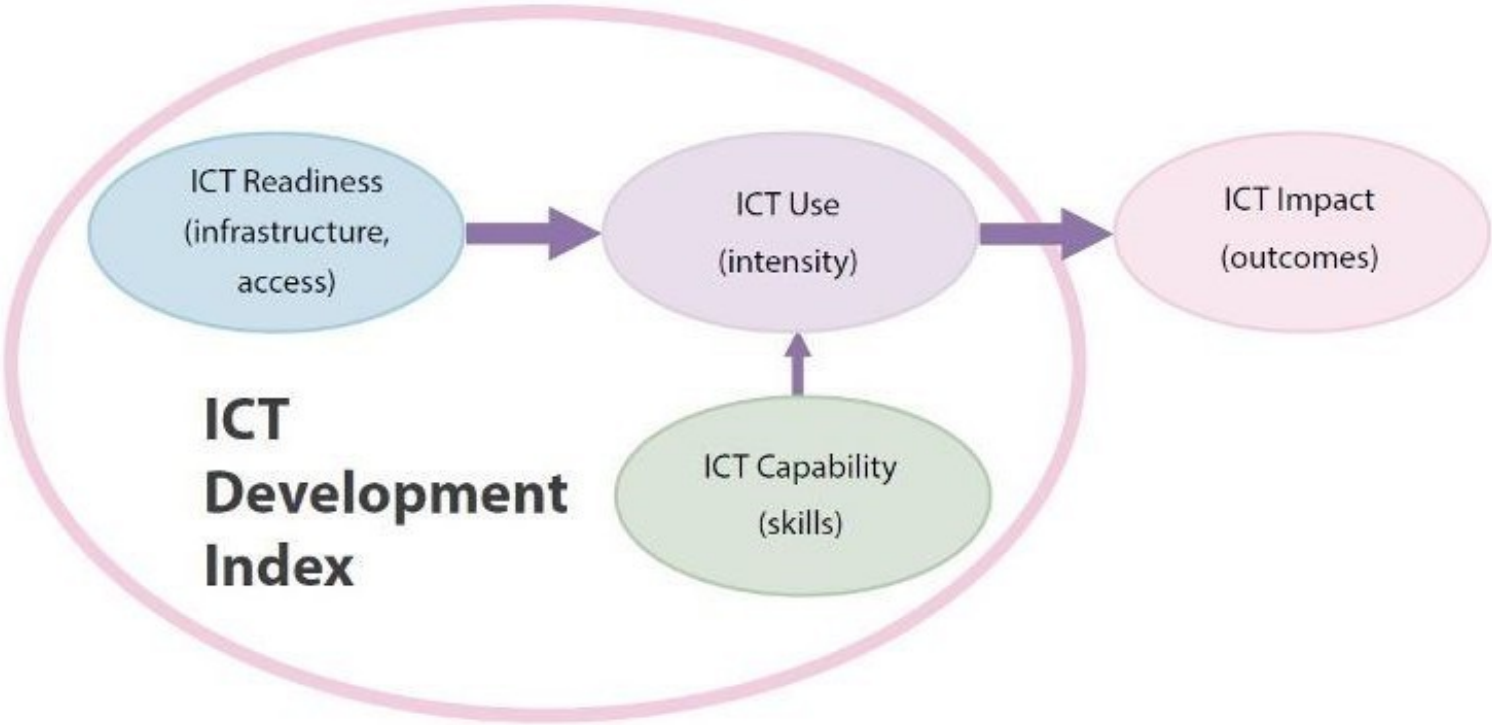
The ICT Development Index (IDI)

Methodology, indicators and definitions

The ICT Development Index (IDI)

- *The IDI is a composite index that combines 14 indicators*
- *Designed to be global and reflect changes taking in place in countries of different levels of development*
- *Was developed by ITU in 2008 in response to member states' request to establish an overall ICT index*
- *Results first reported in the Measuring the Information Society Report (MISR) 2009*

Three stages in the evolution of IDI



IDI

- *ICT Development Index (IDI) is published by International Telecommunication Union (ITU) based on internationally agreed Information and Communication Technology (ICT) indicators.*
- *IDI is a standard tool that governments, operators, development agencies, researchers and others can use to measure the digital divide and compare ICT performance within and across countries.*

IDI Indicators

- *IDI is based on 11 ICT indicators, grouped in 3 clusters: ICT access, ICT use and ICT skills sub indices.*
- *For computation of the final Index, the ICT access and ICT usage sub-indices were each given a 40 per cent weighting, and the skills sub-index 20 per cent weighting.*
- *The final Index value was then computed by summation of the weighted sub-indices.*

IDI Indicators

- **Access sub-index:** *This sub-index captures ICT readiness, and includes five infrastructure and access indicators*
  - *fixed-telephone subscriptions*
  - *mobile-cellular telephone subscriptions*
  - *international Internet bandwidth per Internet user*
  - *households with a computer*
  - *households with Internet access*

IDI Indicators

- **Use sub-index:** *This sub-index captures ICT intensity, and includes three intensity and usage indicators*
  - *individuals using the Internet*
  - *fixed-broadband subscriptions*
  - *mobile-broadband subscriptions*

IDI Indicators

- **Skills sub-index**: *This sub-index seeks to capture capabilities or skills that are important for ICTs. It includes three proxy indicators*
  - *mean years of schooling*
  - *gross secondary enrolment*
  - *gross tertiary enrolment.*
- *As these are proxy indicators, rather than directly measuring ICT-related skills, the skills sub-index is given less weight in the computation of the IDI than the other two sub-indices*

IDI Rankings

- *As per ITU's Measuring the Information Society Report (MISR)-2017, Iceland tops the IDI rankings with an IDI value of 8.98 followed by South Korea, Switzerland and Denmark. India ranks 134 with IDI value at 3.03 among 176 countries.*
- *But seeing the rapidly growing Indian economy, more than 1000 million mobile users, growing size of population and global status in IT/ITes, present ranking at 134 is not fair and needed huge improvement.*
- *NDCP-2018 has the objective to improve the ranking within top 50.*

IDI Rankings

Sl. No	Country	Rank 2017	IDI 2017	Rank 2016	IDI 2016
1.	**South Korea**	**2**	**8.85**	**1**	**8.80**
2.	Japan	10	8.43	11	8.32
3.	Singapore	18	8.05	20	7.85
4.	**China**	**80**	**5.60**	**83**	**5.17**
5.	USA	16	8.18	15	8.13
6.	United Kingdom	5	8.65	5	8.53
7.	Germany	12	8.39	13	8.20
8.	**India**	**134**	**3.03**	**138**	**2.65**

(Data Source : ITU, Measuring the Information Society Report volume1-2017)

Objectives of the IDI

To measure:

- *the level and evolution over time of ICT developments in countries and the experience of those countries relative to other countries;*
- *progress in ICT development in both developed and developing countries;*
- *the digital divide, i.e. differences between countries in terms of their levels of ICT development; and*
- *the development potential of ICTs and the extent to which countries can make use of them to enhance growth and development.*

What is e-Government?

- *OECD (2003): "Use of information and communication technologies, and particularly the Internet, as a tool to achieve better government ."*

- *World Bank: "Use of information technologies (such as Wide Area Networks, the Internet, and mobile computing) by government agencies that have the ability to transform relations with citizens, businesses, and other arms of government".*

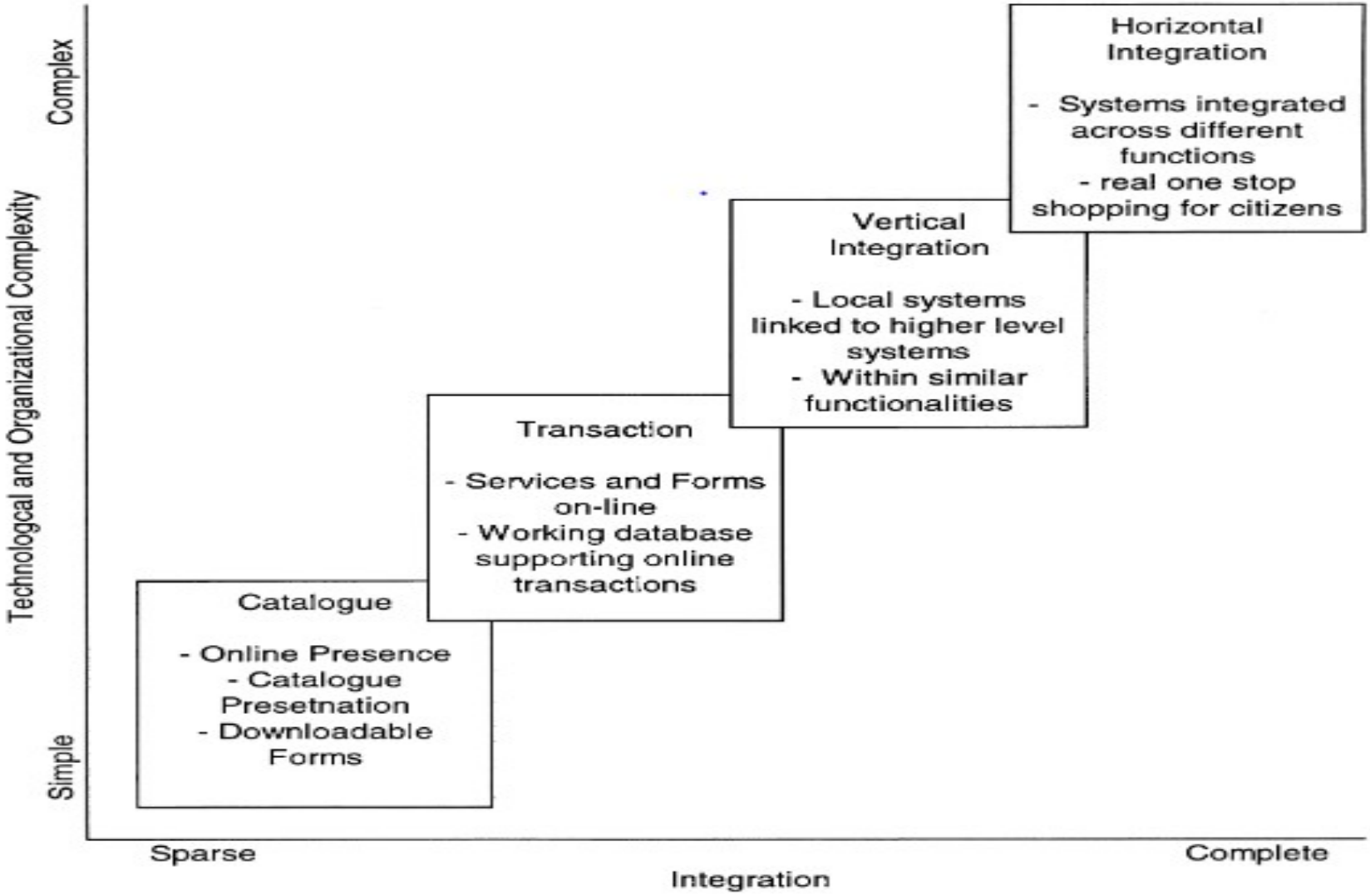
- *United Nations (2014): "The use and application of information technologies in public administration to streamline and integrate workflows and processes, to effectively manage data and information, enhance public service delivery, as well as expand communication channels for engagement and empowerment of people."*

SCOPE OF ACTIVITIES IN e-GOVERNMENT EXPANDING WITH TIME

Why e-Government?

- *Governments all over the world are adopting Information and Communication Technology (ICT) for transforming government administration (Dwivedi et al. 2012; Ebrahim & Irani 2005)*
- *Mode of delivery that has the potential for*
  - **reducing the governance costs** *by minimizing the wastage (Janssen et al. 2008).*
  - *eliminating corruption by* **improving transparency** *(Krishnan et al. 2013).*
  - *promising a better future to the citizens by opening up opportunities for* **reduction in rural poverty and inequality** *(Soriano 2007).*
- *Accordingly,* **huge investments** *are being made in promoting e-Government with the objective of achieving effective delivery of government services.*

Four Stage Maturity Model of e-Government



Source: Layne & Lee (2001)

Challenges

- *Digital infrastructure.*
- *Building IT applications.*
- *Digital literacy.*
- *Government Process Re-engineering.*
- *Interoperability of diverse IT systems.*
- *Change management at user & organizational levels.*
- *Information security.*

Thank you!

Email: rajesh.sharma25@gov.in

Cell: 9868131220